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EXAMINER

PALABRICA, RICARDO J

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/750,765
Filing Date: December 28, 2000
Appellant(s): SWARTZ, MITCHELL R.

EXAMINER'S ANSWER

This is in response to the appeal brief filed 1/7/04 appealing from the Office action mailed 3/20/03.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

- *In re Swartz* No. 00-1108, 56 USPQ2d 1703 (decided November 2000)- Swartz patent application S/N 07/760,970.
- *In re Swartz* No. 00-1107, (decided November 2000)- Swartz patent application S/N 07/371,937.
- Appeal 2009-001853, decided November 2010-Swartz patent application S/N 10/646,143.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1-10, 12-19, 21 and 22

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

5,215,631	WESTFALL	06-1993
3,682,806	KINSELLA	07-1970
5,318,675	PATTERSON	06-1994
5,372,688	PATTERSON	05-1997

D. Braaten, 'Ridiculously' easy test yields energy triumph, The Washington Times, 3/24/89, p. A5.

D. Stipp, Georgis Group Outlines Errors That Led To Withdrawal of 'Cold Fusion' Claims, The Wall Street Journal, p. B4.

Browne, 'Fusion' Claim is Greeted with Scorn by Physicists, The New York Times, p. A1 and A2.

Kreysa et al., A critical analysis of electrochemical nuclear fusion experiments, Journal of Electroanalytical Chemistry, Vol. 266, p. 437-450.

Lewis et al., Searches for low-temperature nuclear fusion of deuterium in palladium, Nature, Vol. 340, p. 525-530.

P. J. Hilts, Significant Errors Reported in Utah Fusion Experiments, The Washington Post, p. A1 and A7.

G. Horanyi, Some Basic Electrochemistry and the Cold Fusion of Deuterium, Journal of Radioanalytical Nuclear Chemistry, Letters, Vol. 137, No. 1, p. 23-28.

Ohashi et al., Decoding of Thermal Data in Fleishmann & Pons Paper, Journal of Science and Technology, Vol. 26, No. 7, p. 729-732.

Miskelly et al., Analysis of the Published Calorimetric Evidence for Electrochemical Fusion of Deuterium in Palladium, Science, Vol. 246, No. 4931, p. 793-796.

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G. Chapline, Cold Confusion, UCRL-101583, p. 1-9.
J. Cooke, Report of Travel of J.F. Cooke, Head, Solid State Theory Section, Solid State Division, ORNL/FTR-3341, p. 2-15.
Alber et al., Search for Neutrons from 'Cold Nuclear Fusion', Zeitschrift fur Physik A Atomic Nuclei
Faller et al., Investigation of Cold ?Fusion in Heavy Water, Journal of Radioanalytical Nuclear Chemistry, Letters, Vol. 137, No. 1, p. 9-16.
Cribier et al., Conventional Sources of Fast Neutrons in "Cold Fusion" Experiments. Physics Letters B, Vol. 228, No. 1, p. 163-166.
Haidas et al., Search for Cold Fusion Events, Solid State Communications, Vol. 72, No. 4, p. 309-313.
Shani et al., Evidence For A Background Neutron Enhanced Fusion In Deuterium Absorbed Palladium, Solid State Communications, Vol. 72, No. 1, p. 53-57.
Ziegler et al., electrochemical Experiments in Cold Nuclear Fusion, Physical Review Letters, Vol. 62, No. 25, p. 2929-2932.
Price et al., Search for Energetic Charged Particle Emission from Deuterated Ti and Pd Foil, Physical Review Letters, Vol. 63, No. 18, p. 1926-1929.
Schreider et al., Search for cold nuclear fusion in palladium-deuteride, Zeitschrift fur Physik B – Condensed Matter, Vol. 76, No. 2, p. 141-142.
Salamon et al., Limits on the emission of neutrons, gamma rays, electrons and protons from Pons/Fleischmann electrolytic cells, Nature, Vol. 344, p. 401-405.
Department of Energy, "Report of the Review of Low Energy Nuclear Reactions," December 1, 2004.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Specification

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9.1 The specification is objected to under 35 U.S.C. 112, first paragraph, as failing to provide an adequate written description of the invention and as failing to adequately

teach how to make and/or use the invention, Le. failing to provide an enabling disclosure.

The specification contains references throughout to the production of "desired reactions" with the isotopic fuel (e.g., deuterium) upon full charging of the cathode with deuterons and, the production of change in quantity of the deuterium in the cathode.

The specification on page 5 and page 6, identifies these "desired reactions" as electrochemically-induced, nuclear fusion reactions in metals (such as deuteriumloaded palladium). Hence the only possible "products" that can be formed in the disclosed and claimed method are nuclear fusion products (e.g., tritium), as recited on page 31, line 10. Indeed, such is even attested to by appellant's parent application SIN 07/760,970, as well as the two applications referred to on page 3 of the appellant's specification.

Additionally, the specification on page 5, lines 9 and 10, on page 19, top paragraph, and page 21, third paragraph, refers to the generation of "excess heat", by the desired reactions of the isotopic fuel (e.g., deuterium) in the loaded cathode metals. Said heat energy being directed out via heat pipes and thermal bus.

This reference to production of electrochemically-induced "nuclear reactions" and "excess heat" within an electrolytic cell has become known in the art as "cold fusion"

As set forth more fully below, the disclosure does not contain reputable evidence that is sufficient to support any allegations or claims that the invention produces "nuclear reactions" or "excess heat", that any allegations or claims of the production of excess heat due to nuclear and/or chemical reactions are valid and reproducible, nor that the invention as disclosed is capable of operating as indicated and capable of providing the intended output.

This concept of producing nuclear reactions and excess heat by "cold fusion" was, in general, publicly announced by Fleischmann and Pons (hereinafter referred to as "F and P") on March 23, 1989 (see the 3/24/89 article by D. Braaten). Appellant's invention is thus, at most, no more than a variation of the cold fusion concept or system set forth by F and P.

Such is essentially attested to, for example, by appellant's statement, at the top of page 13 of the specification, that his catastrophic active medium (CAM) theory differs from the other cold fusion theories referred to on page 12 of the specification in that the nuclear fusion reactions are hypothesized to not occur within the metal bulk, but rather, at certain large vacancies and defects by the sudden fractional desaturation of deuterons.

As set forth more fully below, this "cold fusion" concept of producing nuclear reactions, including energy generation (known in the art as "excess heat"), is still no more than just an unproven concept.

Subsequent to the announcement of this cold fusion concept by F and P, many laboratories have attempted to confirm the results of F and P.

The results of these attempts at confirmation were primarily negative and even of the few initial positive results, these were generally either retracted or shown to be in error by subsequent experimenters (e.g., see the article by Stipp in the Wall Street Journal and the article by Browne in The New York Times (particularly page A22)).

The general consensus by those skilled in the art and working at these various laboratories is that the assertions by F and P were based on experimental errors (e.g., see The New York Times article by Browne, Kreysa et al., Lewis et al., Hilts, Horanyi, Ohashi et al., MisKelly et al. and Chapline).

Note, for example, that Kreysa et al. on page 440 state that, "We have repeated

the heat balance measurements more than 10 times and never found a significant heat excess within the accuracy limits of $\pm 5\%$." Kreysa et al.. also refer to various possible sources of error that could lead to erroneous conclusion that nuclear reactions and excess heat were produced.

Hilts states that the MIT experiments failed to produce any of the excess heat reported by the Utah group.

Lewis et al. state in the summary on page 525 that they found no evidence of excess enthalpy in their experiments and, they refer to various possible sources of error which could lead to the erroneous conclusion that nuclear reactions and excess heat were produced (note pages 528-530).

Both Hilts and Lewis et al. indicate that in any determination of excess heat, one must determine the total amount of energy produced (as heat and chemical energy) integrated over the whole period of cell operation, versus the total energy input.

It was also the general consensus by those skilled in the art and working at these various laboratories that there is no reputable evidence of neutron, gamma ray, tritium or helium production to support the allegation or claim that nuclear reactions are taking place, nor is there any reputable evidence to support the allegation or claim of excess heat production. See, for example, (in addition to the above listed references) page A14 of the 7/13/89 edition of The Washington Post, Cooke, Alber et al., Faller et al., Cribier et al., Hajdas et al., Shani et al., Ziegler et al., Price et al., Schrieder et al., and pages A3 of the 3/29/90 edition of The Washington Post.

Of particular interest is page A3 of the 3/29/90 edition of The Washington Post that refers to the negative findings of a physicist who had tested Pon's own cold fusion apparatus for nuclear output (for a more complete analysis of said "negative findings", note the article by Salamon et al). Also of interest in this respect is the Cooke reference

that, on pages 4 and 5, refers to the attempts at Harwell to obtain "cold fusion" and that Fleischmann (of F and P) had requested help from Harwell in verifying the cold fusion claims. Said page 5 also indicates that data was collected in Frascatti type (Le. gaseous) experiments. The last paragraph on said page 5 states: "After three months of around-the-clock work at a cost of over a half million dollars, the project was terminated on June 15. This program is believed to be one of the most comprehensive worldwide with as many as 30 cells operating at a time and over 100 different experiments performed. The final results of this monumental effort in the words of the official press release was, "In none of these experiments was there any evidence of fusion taking place under electrochemical conditions". It should also be added that there was no evidence of excess heat generated by any of their cells." (Underlining added).

Appellant's specification contains assumptions and speculation as to how and in what manner, his invention will operate. However, appellant has presented no reputable factual evidence to support his assumptions and speculation regarding a reproducible, sustainable excess heat (cold fusion) and low temperature transmutation reactions.

Note in this respect that the examiner (as set forth above) has presented documentary evidence that there are no operative cold fusion systems that actually produce excess heat, neutrons, or any other nuclear reaction product.

The disclosure is thus insufficient and non-enabling as to exactly what all is necessary to actually present a reproducible, sustainable excess heat (cold fusion) and low temperature nuclear reaction, and, as to what would cause such reactions to actually take place in the appellant's system.

On page 10, lines 15+ of the specification, appellant discloses a not shown power supply and control unit consisting of a current source and FUSOR reactor control device. However, there is neither an adequate description of the elements that constitute said power supply and control unit nor enabling disclosure of how and in what manner the elements are interconnected for the claimed invention. Also, there is neither an adequate description nor enabling disclosure of how and in what manner these elements function as one, integrated system to achieve the objectives of the claimed invention. The disclosure is also insufficient as to what exactly is "FUSOR".

On page 11, lines 9+, an equation is given for the spatial distribution of deuterons, $D^+(z)$. However, there is neither an adequate description nor enabling disclosure of how in what manner this distribution was derived from the molecular flux, $F(D^+)$. For example,

- The disclosure is insufficient as to whether K_f is a constant or a variable. If it is a variable, disclosure is insufficient as to what exactly are the parameters that determine its value, and as to whether or not these parameters are time and/or spatially dependent.
- The disclosure is insufficient as to whether K_c is a constant or a variable. If it is a variable, disclosure is insufficient as to what exactly are the parameters that determine its value, and as to whether or not these parameters are time and/or spatially dependent.
- The disclosure is insufficient as to what exactly B is diffusivity of. Also, the disclosure is insufficient as to whether B is a constant or space and/or time-dependent.
- The disclosure is insufficient as to how and what losses, if any, are exactly accounted for in the equations (e.g., loss due to deuteron gas evolution from the bulk solution).

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- The disclosure is insufficient as to what exactly are the variables A,F,L,I and Kf in the $D+(z)$ equation.

On page 16, lines 6+, the appellant discloses an equation for the deuterium partial pressure, P02. However, the disclosure is insufficient as to what exactly are the terms " α " and "n" .

On page 18, lines 12+, the appellant discloses an equation for the fractional saturation, yD. However, the disclosure is insufficient as to what exactly is the term " c_1 ".

On page 20, lines 8+, the appellant discloses that fugacities involving hydrogenated palladium range from 5000 to 10^7 atmospheres. However, there is neither an adequate description nor enabling disclosure of how and in what manner the integrity of the apparatus can be maintained under these pressures that the appellant refers to as "astronomic pressures." (see page 14, line 13). Also, there is neither an adequate description nor enabling disclosure of how and in what manner the reactions can be sustained (i.e., not terminated) given these astronomical pressures that are potentially disruptive or destructive.

On page 25, lines 7+, appellant discloses a cluster of seven CAM devices that is supported and thermally coupled by epoxy. However, there is neither an adequate description nor enabling disclosure of how and in what manner epoxy can so maintain the devices in a stacked configuration (i.e., not fall apart), especially during the period when the alleged astronomical pressures are developed.

On page 27, lines 3+, of the specification, the appellant discloses that the three CAM devices are clipped to a holding board and then inserted into the fusion receptor apparatus shown in Fig. 12. There is neither an adequate description nor enabling disclosure of how and in what manner the said three devices are so held in place by clips. Also, there is neither an adequate description nor enabling disclosure of how and in what manner the said three devices can be inserted into the receptor apparatus while

they are clipped to the board. The appellant also states that some clips are electrically conductive and some are insulators. The disclosure is insufficient as to which components exactly receive the conductive clips and which components get the insulator clips.

On page 32, lines 4+, appellant discloses that the products are removed at the product barrier. However, there is neither an adequate description nor enabling disclosure of how and in what manner said products are so removed.

On page 32, 2nd paragraph, appellant discloses a two-stage method of loading, with a first stage of loading and a second stage of sudden rapid flow of hydrogen within the metal. However, there is neither an adequate description nor enabling disclosure of how and in what manner said method of loading is done. Also, the disclosure is insufficient as to what exactly is meant by the term "sudden rapid ("catastrophic") flow of hydrogen" and how does one determine whether such sudden rapid flow has been achieved.

Appellant's claimed method of low temperature electrolytic nuclear reactions is practiced on an apparatus of non-cold fusion art (e.g. Westfall [U S. 5,215,631] or Kinsella et al. [U.S. 3,682,806] or Patterson [U.S. 5,318,675] -hereinafter referred to as Patterson -1, or Patterson [U.S. 5,372,688] -hereinafter referred to as Patterson-2) that is identical to the appellant's, and, these apparatuses are all operated in an identical manner, i.e., as an electrolytic cell. Even more importantly, note that Lewis et al. searched for low temperature nuclear fusion in a system and manner of operation identical to that recited in appellant's claims (note the reference to oscillating current pulses and abrupt current steps in the second column of page 525), but with negative results ! Note that it is well-settled case law that identical apparatuses operated in the same manner, must produce identical results. There is accordingly, neither an adequate

description nor enabling disclosure of how and in what manner, appellant's invention is able to produce low temperature electrolytic nuclear reactions and excess heat whereas, the identical systems and methods of operation in anyone of Lewis et al., Westfall or Kinsella et al., or Patterson11 or Patterson-2, presumably did not produce said low temperature electrolytic nuclear reactions and excess heat.

Assuming for the sake of argument that appellant's invention does function in a different manner to produce a different result from that of anyone of Lewis et al., Westfall or Kinsella et al., it can only be because appellant's invention actually contains some additional critical feature(s), component(s), etc., not found in any of said references which is necessary to enable appellant's invention to function differently from any of said references so as to be able to produce a different result.

Accordingly, the disclosure is insufficient in failing to disclose said additional critical feature(s), component(s), etc., necessary to cause appellant's invention to operatively function in a different manner to produce a result different from that of said references.

There is neither an adequate description nor enabling disclosure of how and in what manner, one can control the loading of isotopic fuel into a material merely by: a) supplying said isotopic fuel to said material; b) providing means for loading said isotopic fuel into said material to saturate said material; and c) providing means for producing a change in the active quantity of said isotopic fuel within said material (e.g., see claim 1).

There is neither an adequate description nor enabling disclosure of how and in what manner, one can control the two-stage loading of isotopic fuel into a material merely by: a) supplying said isotopic fuel to said material; b) providing means for loading said isotopic fuel into said material to saturate said material; and c) providing

means for producing a change in the active quantity of said isotopic fuel within said material (e.g., see claim 4).

There is neither an adequate description nor enabling disclosure of how and in what manner, one can produce a product using a material loaded with isotopic fuel by an apparatus that merely includes: a) means to supply said isotopic fuel to said material; b) means to load said isotopic fuel into said material to saturate said material; c) means to produce a change in the active quantity of said isotopic fuel within said material; d) means thereby to produce catastrophic diffusion flux of said isotopic fuel within said material (e.g., see claim 13),

Clearly, when an artisan or experimenter is relying on the experimental results of particular tests or experiments to establish certain facts, i.e. the production of excess heat and of low temperature nuclear reactions, it is incumbent upon the experimenter to show that the alleged experimental results of excess heat and low temperature nuclear reactions, are valid and not just the results of experimental errors or misinterpretations of experimental data (and that the alleged experimental results do not fall within the limits of experimental errors),

There is thus no reputable evidence of record to support the assumption and speculation that the invention would actually operate as indicated and produce the desired results as indicated,

It is not seen wherein the specification discloses any particular structure, etc. which is unique to the appellant's system and which would make the appellant's cold fusion system operative whereas the systems disclosed in the above referenced "numerous teachings by skilled artisans," were not operative,

There is neither an adequate description not enabling disclosure of the parameters of a specific operative embodiment of the invention, including atomic or weight ratio of metal electrodes to electrolyte (e.g. palladium to gel), dimensional ratio of electrodes to their spacing (i.e., sizes of anode and cathode relative to the space between them), voltage and current requirements to produce the orthogonal electric fields and the magnetic field, surface area-to-volume requirement for the reactor, minimum concentration of the isotopic fuel in the cathode necessary for the desired reactions to take place, the exact composition (including impurities and amounts thereof) of the electrolyte and of the cathode and of the anode, etc. These impurities can have an adverse effect on the desired operation of the invention.

It is apparent 'from the specification that appellants' concept or theory involves a "cold fusion" system based on the "cold fusion" systems that came about from the work of F and P, is workable or operative, only if these systems are already operative.

However, as set forth above, the examiner has presented evidence showing that in such cold fusion systems, the claims of excess heat (as well as of other nuclear reaction products), are not reproducible or even obtainable. It consequently must follow that the claims of excess heat or nuclear reactions are not reproducible or even obtainable with appellant's invention. While appellant may have set forth theoretical concepts, it is well known in the cold fusion field that theory and reality have a habit of not coinciding. There is no evidence to indicate that the appellant has so succeeded where others have failed, in arriving at an operative cold fusion system, i.e. that he has progressed his system beyond the point of an unproven theory or concept which still requires an undue amount of experimentation to enable the artisan to make and use the inventive system for its indicated purpose. This view is also considered supported by the failure to set forth a full example of the specific parameters of an operative

embodiment. One cannot rely on the skill in the art for the selection of the proper quantitative values to present an operative cold fusion system, since those in the art do not know what would be these values. See *Bank v. Rauland Corp.*, 64 U.S.P.Q. 93; *In re Corneil et al.*, 145 U.S.P.Q. 697.

To reiterate briefly, the examiner has presented evidence that neither the situation of excess "heat" nor of other, nuclear reaction products, can reasonably be expected to be reproducible or even obtainable with the present invention.

There is no reputable evidence of record that would overcome the experimental showings in the above listed references, disproving this concept of "cold fusion".

Again, there is no evidence to indicate that the appellant has so succeeded where others have failed, in arriving at an operative system that produces nuclear fusion or even "excess heat", i.e., that he has progressed his system beyond the point of an unproven theory of concept which still requires an undue amount of experimentation to enable the artisan to make and use the invention for its indicated purpose.

It is thus considered that the examiner (for the reasons set forth above) has set forth a reasonable and sufficient basis for challenging the adequacy of the disclosure. The statute requires the appellant itself to inform, not to direct others to find out for themselves; *In re Gardner et al.*, 166 U.S.P.Q. 138, *In re Scarborough*, 182 U.S.P.Q. 298. Note that the disclosure must enable a person skilled in the art to practice the invention without having to design structure not shown to be readily available in the art; *In re Hirsch*. 131 U.S.P.Q. 198.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

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Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9.2 Claims 1-10, 12-19, 21 and 22 are rejected under 35 U.S.C. 101 because the claimed invention as disclosed is inoperative and therefore lacks utility.

The reasons that the inventions as disclosed is inoperative are the same as the reasons set forth in section 9.1 above as to why the specification is objected to and the reasons set forth in section 9.1 above are accordingly incorporated herein.

There is no reputable evidence of record to indicate the invention has been reduced to the point of providing in current available form, an operative cold fusion system. The invention is not considered as meeting the requirements of 35 U.S.C. 101 as being "useful". Note in this respect, Page A 14 of the 7/13/89 edition of The Washington Post which indicates that there is no convincing evidence that the "phenomena attributed to cold fusion would produce useful sources of energy".

The appellant, at best, has set forth what may be considered a concept or an object of scientific research. However, it has been held that such does not present a utility within the meaning of 35 U.S.C. 101. See *Brenner v. Manson*, 148 U.S. P.Q. 689.

Additionally, it is well established that whereas here, the utility of the claimed invention is based upon allegations that border on the incredible or allegations that would not be readily accepted by a substantial portion of the scientific community, sufficient substantiating evidence of operability must be submitted by appellant. Note *In re Houghton*, 167 U.S.P.O. 687 (CCPA 1970); *In re Ferens*, 163 U.S.P.O. 609 (CCPA 1969); *Puharich v. Brenner*, 162 U.S.P.O. 136 (CA DC 1969); *In re Pottier*, 152 U.S. P.Q. 407 (CCPA 1967); *In re Ruskin*, 148 U.S. P.O. 221 (CCPA 1966); *In re Citron*, 139 U.S. P.O. 516 (CCPA 1963); and *In re Novak*, 134 U.S.P.O. 335 (CCPA 1962).

Claim Rejections - 35 USC § 112

9.3. Claims 1-10, 12-19, 21 and 22 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The reasons that the inventions as disclosed are not enabling are the same as the reasons set forth in section 9.1 above as to why the specification is objected to and the reasons set forth in section 9.1 above are accordingly incorporated herein.

9.4. Claims 1-10, 12-19, 21 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which appellant regards as the invention.

The claims are vague, indefinite and incomplete.

The preambles of method claims 1-10 and 12, and apparatus claims 13-19 disclose a process and apparatus, respectively, for producing a product using a material which is loaded with an isotopic fuel. This implies that the process/apparatus is applied to a material that already contains isotopic fuel. However, the bodies of the claims disclose supplying and loading said isotopic fuel into the material. These claims are vague, indefinite and incomplete as to whether the process/apparatus supplies and loads additional isotopic fuel to the material that already contains isotopic fuel, i.e., do the claims imply multiple loading of fuel?

The preambles of method claims 1-10 and 12 are directed to a process for

producing a product and for controlling the loading of isotopic fuel into a material, and the preambles of claims 13-19 are directed to an apparatus for producing a product, however, the bodies of the independent claims fail to recite a specific step of producing said product, as well as a specific step of controlling said product, and, the claims are hence vague, indefinite and incomplete. See also MPEP 2172.01.

The claims are also vague, indefinite and incomplete as to what is actually the product.

As indicated in sections below, anyone of Westfall, or Kinsella et al., or Patterson-1, or Patterson-2, Illustrate(s) an electrolytic process that is identical to that recited in said appellant's claims. Appellant's disclosure indicates that his process results in the generation of excess heat energy because his apparatus is claimed to have a thermal bus connected to heat pipes (e.g. see top paragraph on page 29). This implies that the thermal bus-heat pipe combination extracts heat generated by the appellant's apparatus. Neither one of Westfall, Kinsella et al., Patterson-1, or Patterson-2 specifically disclose the generation of low temperature nuclear reactions and the generation of sufficient heat energy such as to require removal thereof. Assuming for the sake of argument that either one of Westfall's or Kinsella et al.'s system is not capable of producing such nuclear reactions and heat energy, appellant's claims are incomplete in failing to recite the additional critical structure and/or method steps (not found in anyone of Westfall, Kinsella et al., or Patterson-1, or Patterson-2, or Patterson-3.) that are actually necessary to produce appellant's indicated heat energy and nuclear reactions.

Claim 1 recites such clauses as "creating thereby a catastrophic diffusion flux of said isotopic fuel within said material" and "means thereby producing said product" the content of which does not inherently follow from the actual elements recited. For example, simply providing a "means for producing a change in the quantity of said isotopic fuel within said material" does not necessarily create a catastrophic diffusion flux. There is evidently a missing critical step. Thus, the scope of the claims and/or the metes and bounds thereof cannot be determined. Said clauses accordingly raise a question as to the limiting effect of the language therein on the claims (see MPEP 2106.II.C).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9.5 Claims 1-10, 12-19, 21 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Westfall (U.S. 5,215,631).

Westfall discloses a process and an apparatus for growing crystals by electrodeposition. He teaches that his invention has use in growing palladium, titanium and other metal crystals for "cold fusion" electrodes (e.g., see column 1, lines 36+, column 2, lines 37+, and column 3, lines 32+). His method uses the electrolytic apparatus shown in Fig. 1 comprising a bath (4) between a working electrode 8 (where

the crystal growth occurs) and a counter electrode (which replenishes the electrolytic solution's concentration of ions of the to-be-deposited material. The bath is used by passing current between the working and counter electrodes (e.g. see column 4, lines 25+). Westfall further discloses that palladium can be deposited from the more common aqueous systems (see column 7, lines 25+). Table 1 lists metals that can be grown from an aqueous solution, including palladium, and the more common anion and cation components. He teaches that hydrogen is generated in an aqueous system (e.g. see column 9, lines 32+).

Westfall further discloses the use of orthogonal electric fields as part of the nucleation manipulation techniques for crystal growth control. He states that orthogonal electric fields are generated by the use of "conformal" counter electrodes with configurations such as wire-tubular; sphere-spherical, cube-cubical torus-toroidal, etc. (see column 24, lines 11+).

Westfall also discloses conformal electric fields may be used in combination with one or more nucleation manipulation techniques, such as magnetic fields (see column 24, lines 55+).

Note that appellant's claim language reads on Westfall as follows: a) "isotopic fuel" reads on the hydrogen generated by Westfall's aqueous solution; b) "material" reads on "working electrode"; c) "diffusion barrier" reads on barrier formed by the ions inherently absorbed within the working electrode.

The first electric field must first effect movement of ions from the electrolytic bath towards the working electrode before the orthogonal electric field can effect control of distribution of these ions to form the desired crystal growth. Therefore, the

first electric field and its effect reads on appellant's "loading of isotopic fuel into material" The orthogonal electric field reads on "means for producing a change in the quantity of said isotopic fuel."

Note also that since the Westfall's process and apparatus read on appellant's process and apparatus claims, the same can be said regarding appellant's claim language of "creating a catastrophic diffusion flux of said isotopic fuel in said material." Also, there is inherently a temperature change in the system because of the electrolytic process which affects the quantity of isotopic fuel in the material. Note further that Westfall's aqueous solution contains ordinary water, which, in turn, has 0.016% heavy water content (see Etherington, Nuclear Engineering Handbook, p 8-27). This reads on the claim language regarding having deuterium in the isotopic fuel. Westfall inherently also has a means to remove the product, i.e. formed, crystal. Again, appellant's claim language' reads on such.

9.6 Claims 1-8, and 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by anyone of Patterson (U.S. 5,318,675) [hereinafter referred to as Patterson-1]), or Patterson (U.S. 5,372,688) [hereinafter referred to as Patterson-2. Either one of Patterson-1 or Patterson-2 discloses in Fig. 2 an electrolytic cell (12) filled with a liquid electrolyte (59) of heavy water, and having electrodes 15 and 16, A plurality of conductive microspheres (36) having a uniform outer palladium coating are positioned within the housing (14). See, for example, Patterson-1, column 3, lines 54+ and column 4, lines 21 +. The cell is exercised by a first stage (see Figs. 1 and 2) , which Patterson1

refers to as a "loading stage" during which a relatively low level current (0.05 amps) is introduced across the electrodes 15 and 16.

During the initial loading, the palladium surface of the microspheres (36) fully absorbs and combines with the hydrogen isotope, i.e., it becomes loaded. This loading takes about two hours under a current flow through the cell of about 0.05 amps (e.g., see column 6, lines 6+).

Following the loading stage, the current level between electrodes 15 and 16 is then incrementally increased. During this time, the temperature of the electrolyte is both monitored and controlled by increasing the flow rate of electrolyte (59) therethrough (see column 6, lines 1+). Note that appellant's claim language of "producing a change in the active quantity of isotopic fuel in material by a change in temperature of the material" reads on either Patterson-1's or Patterson-2's process of "controlling the electrolyte temperature by changing the flow rate," Note that the palladium-coated microspheres are immersed in the electrolyte and any change in the electrolyte temperature inherently changes the temperature of the material.

Since the Patterson-1 or Patterson-2 process and apparatus read on appellant's process and apparatus claims, the same can be said regarding appellant's claim language of "creating a catastrophic diffusion flux of said isotopic fuel within said material." Appellant's claim language, "diffusion barrier" reads on barrier formed by the ions inherently absorbed within the microspheres.

9.7 Claims 1, 2, 4, 5, 7, 10, 13, 15, 16 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Kinsella et al. (U.S. 3,682,806). Kinsella et al. disclose a process for

electroplating metallic articles with carboxylic film-forming materials utilizing lithium hydroxide as solubilizer (see Fig. 1 and column 8, 2nd paragraph). Fig. 1 shows the anode (4), which is the material to be coated, a stainless steel cathode (6). An alternative embodiment can have an auxiliary platinum anode (7) and an auxiliary stainless steel cathode (8). The "electrodeposition current" flows from the anode (4) to the stainless steel cathode (6). An auxiliary direct current (referred to as "regeneration current") is applied between the auxiliary electrodes, the direction of the current being orthogonal to the direction of the electrodeposition current (see column 9, lines 65+).

Note that appellant's "isotopic fuel" in the claim language reads on Kinsella et al. 's lithium anions that form on the anode, "material" reads on "anode", "loading of isotopic fuel into material" reads on the "electrodeposition current" and its effect. "change in the active quantity of isotopic fuel within material" reads on the "regeneration current" and its effect. Appellant's claim language, "diffusion barrier" reads on barrier formed by the ions inherently absorbed within the cathode.

(10) Response to Argument

10.1 35 U.S.C. 112, first paragraph rejection

Appellant traversed the lack of written description and lack of enablement of the claimed invention. Appellant essentially argues that:

- a) the references applied by the examiner in the rejection are different from his claimed invention;
- b) appellant's peer-reviewed publications prove enablement;

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- c) skilled-in-the art support the appellant;
- d) literature supports the appellant;
- e) technical issues support the appellant;

The examiner disagrees.

First, in order to comply with the enablement requirement of the first paragraph of 35 U.S.C. 112, a disclosure must adequately present the claimed invention so that an artisan could practice it without undue experimentation. In determining whether any disclosure would require undue experimentation to make and use claimed subject matter, consideration must be given to such factors as the predictability or unpredictability of the art in question, the relative skill of those in the art, the state of the prior art, the nature of the invention, the presence or absence of working examples, the amount of direction or guidance presented, and the quantity of experimentation necessary (*In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)).

With respect to each of the above considerations, the references cited by the examiner would lead to the conclusion that undue experimentation would be required to perform the processes in the manner claimed. Although the skill of those in the art may be considered relatively high, the numerous contemporary publications cited by the examiner clearly shows that the art in question is highly unpredictable. Also, the nature of the invention involves an incredible utility while the present specification neither presents working examples nor specific direction or guidance as to how to achieve the desired results. Indeed, the specification contains no disclosure of any operative embodiment or any of the specific parameters necessary, including atomic or weight

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ratio of electrodes to electrolyte, voltage and current requirements for the orthogonal fields. Moreover, the figures describing the apparatus used in this process are mere schematics!

As to argument a), it appears that appellant is stating that the cold fusion references cited by the examiner do not apply to his invention.

First, the instant application is directed to the generation of excess heat by reactions of the isotopic fuel in the loaded cathode metals. This generation of excess heat has been known in the art as "cold fusion." Therefore, the references applied by the examiner are in the same field of endeavor as appellant's case and therefore relevant to his invention.

Second, appellant himself admits that instant application is a continuation of his parent application, S/N 07,760,970, which is directed to methods and systems to control cold nuclear fusion. Thus, the product of the claimed invention must be the same as the product of "cold fusion" in the parent case. The Court of Appeals for the Federal Circuit, in its 00-108 judgment, confirmed the lack of operability and lack of enablement of S/N 07/760,970. Therefore, this application also lacks operability and lacks enablement since it is a continuation of the parent case.

As to argument b), the publications appellant relies upon are his own, self-authored articles and cannot be considered as coming from an unbiased source. It is obvious that appellant would not present any article he has written that does not support his arguments. Also, the articles are dated after the filing date of the parent application to which the instant application is a continuation. These references cannot cure the

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insufficiency of the disclosure of the parent application and, by extension, that of the instant application.

Still as to argument a), Appellant argues that the examiner is only citing negative results, i.e., the absence of neutrons, to support that cold fusion is taking place.

Appellant argues that there have been some positive results of neutron emission in some experiments. Appellant is clearly misinterpreting the thrust of examiner's point which is as follows:

There is a wide disparity among the experimenters who reported observing cold fusion on how they interpret and present their observations. Some of these reported cold fusion systems were "construed" by the experimenters as producing neutrons, others as producing tritium, others as producing helium, still others as producing heat, etc., depending upon how the experimenter is "interpreting" the experimental results or, more appropriately, "misinterpreting" the experimental results. Clearly, it is not scientifically plausible for the same steps of electrolytically loading an electrode with heavy hydrogen to the point where nuclear fusion takes place. to only produce "excess heat" and no neutrons in some experiments (as some cold fusion experimenters and the appellant allege) and for the same steps to only instead produce tritium, as some other cold fusion experimenters allege, etc.

It is considered well settled case law that identical systems operated in identical manner must produce identical results. Thus; scientific evidence and case law do not support cold fusion advocates and believers that the process of electrolytically loading an electrode with heavy hydrogen to a point where cold fusion occurs, can produce different results. dependent upon how the cold fusion experimenter interprets, or more

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appropriately misinterprets the experimental results.

Appellant further argues that the observation of experimenters that yielded negative results "have been and remain contested by scientists as described in peer-reviewed literature (Miles 94B, Noninski 91, Noninski 93, Mallove 91, Milton 96)". See page 24 of the Brief. The examiner disagrees. Appellant has provided no reputable reason as to why the allegations of cold fusion advocates or believers of alleged errors in "negative" results experiments must be presumed valid and thus, the experimental work of the experimenters who obtained the negative results are invalid.

Appellant also argues that the examiner's evidence is flawed because "the art supplied by the Office is outdated, not peer-reviewed, not relevant and flawed". See page 24 of the Brief. The examiner disagrees. In the U.S. Federal Court of Appeals decision, *In re Dash*, which pertains to Dash's claimed method of generating heat energy using an electrolytic cell, it was stated:

"The Patent Office establishes a prima facie case of lack of utility by "showing that one of ordinary skill in the art would reasonably doubt the asserted utility [Brana, 51 F.3d at 1566]. Because the determination of whether an invention is operative is a question of fact, we review the Board's decision on this issue for substantial evidence. Dash argues that the evidence that supported the examiner's prima facie case is invalid because it does not concern the invention as claimed and because the documents are anecdotal or not peer reviewed. However, we are aware of no rule that forbids the examiner from relying on related technology, anecdotal information, or sources that are not peer-reviewed to establish a case of inoperability. These details merely go to the weight of the evidence, not whether it can be relied upon at all. Thus, we understand Dash's arguments as attacks on the weight the Board accorded to the cited information.

Substantial evidence supported by the Board's finding that the examiner established a prima facie case of inoperability. While it may be ideal for the examiner to offer peer-reviewed data on precisely the claimed invention to establish such a case, such extreme necessity is not required. The examiner must only establish that a person of ordinary skill in the art would reasonably doubt the asserted utility [Brana, 51 F.3d at 1566]. It was reasonable for the Board to conclude that the examiner has established such doubt based on the number and quality of cited references that debunked claims of cold fusion." Underlining provided.

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Appellant argues that his own peer-reviewed publications prove enablement (see Point 4, page 24+ of the Brief). The examiner disagrees. Appellant's own article entitled, "Optimal Operating Point Characteristics of Nickel Light Water Experiments," as well as the others cited by the appellant, are overcome by the 2004 DOE Report, which states in its Conclusion:

"While significant progress has been made in the sophistication of calorimeters since the review of the subject in 1989, the conclusions reached by the reviewers today are similar to those found in the 1989 review.-Underlining provided.

The main conclusion of the cited 1989 DOE Report is as follows:

"Based on the examination of published reports, reprints, numerous communications to the Panel and several site visits, The Panel concludes that the experimental results of excess heat from calorimetric cells reported to date do not present convincing evidence that useful sources of energy will result from the phenomenon attributed to cold fusion: Underlining provided.

Appellant also argues that, "literature supports the appellant" (see Point 7, page 30 of the Brief). The examiner disagrees. First, the cold fusion community was attempting to convince DOE that cold fusion was real, that it produced excess heat, etc., and to convince DOE to provide funding for additional research. The logical corollary is that the cold fusion community would thus have presented to DOE what they considered to be their best experiments. DOE was thus made aware of the work of McKubre, Miles (U.S. navy), among others, but still the DOE 2004 Report came to the same conclusion as the 1989 DOE Report.

In this same respect, if the cold fusion community actually considered appellant's invention to represent clear, convincing, factually incontrovertible, reproducible evidence of cold fusion, they clearly would have presented appellant's experiments to DOE, so as to convince DOE that cold fusion was real, was reproducible. and funding should be

provided. The mere fact that the cold fusion community chose not to present appellant's experiments to DOE can be considered a prima facie evidence that the cold fusion community itself does not actually consider appellant's inventive experimental system to be operative and reproducible.

As to argument c), the declarations that appellant relies upon are irrelevant because: a) they have been considered in the prosecution of rejected parent application (e.g., 4/22/94 Strauss; 3/24/00 Eugene Mallove); or b) they pertain to a different application (e.g., 2/21/01 Hal Fox and 2/21/01 Talbot Chubb that are directed to S/N 07/371,937); or c) they are not from disinterested parties (e.g. Swartz).

As to arguments d) and e), the articles have no probative value because appellant failed to identify how each reference specifically relates to the claimed invention. For example, on page 31 of the Brief, appellant cites the report of Miles "linking the formation of helium-4 to excess heat." However, appellant does not show how his claimed apparatus is identical to that of the Miles apparatus. Also, nowhere in appellant's specification is there a mention of helium-4 being generated by his claimed process.

10.2 35 U.S.C. 112, second paragraph rejection

Appellant traversed the rejection of claims for indefiniteness by essentially repeating his arguments on the rejection for lack of enablement. These arguments fail to address the issues raised by the examiner in section 9.4 above.

10.3 35 U.S.C. 102 Rejections

The arguments presented by appellant in the Brief are nothing more than a repeat of the arguments that the examiner have already addressed in the 3/23/03 final Office action. While appellant may have presented additional arguments to support his previous arguments, these are not convincing because they do not add anything new to cause any change in the examiner's conclusion on the lack of merits of appellant's arguments.

Appellant traversed the use of Westfall, Patterson ('675) and Patterson ('688) in the-rejection of the claims on the ground that the application was filed prior to all three references because the instant application is a continuation of an application filed on 9/17/91.

The examiner disagrees.

The application is not entitled to the 9/17/91 filing date of a continuation of the parent because it does not meet the requirements of MPEP 201.11(I) – Disclosure Requirement, which states

“The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application); the disclosure of the invention in the prior application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Prods., Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994). The prior-filed application must disclose the common named inventor's invention claimed in the later-filed application in the manner provided by the first paragraph of 35 U.S.C. 112. See 37 CFR 1.78(a)(1). Accordingly, the disclosure of the prior-filed application must provide adequate support and enablement for the claimed subject matter of the later-filed application in compliance with the requirements of 35 U.S.C. 112, first paragraph.” Underlining provided.

In Appeal No. 94-2920 for the parent application, S/N 07/760,970, the Board affirmed

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the rejection of claims under 35 U.S.C. 112, first paragraph (see page 21 of the 6/22/1999 Board Decision). Accordingly, the current application, which was filed on 12/28/2000, cannot claim priority of the filing date of the earlier application.

Westfall's patent has a priority date of April 25, 1990, which is more than one year prior to the 12/28/00 filing date for the current application. Patterson ('675) has a priority date of June 7, 1994 and Patterson ('688) has a July 20, 1993 priority date. Both Patterson patents were filed more than one year prior to the 12/28/00 filing date of the current application.

Appellant traversed Westfall, Kinsella, Patterson ('675) and Patterson ('688) on the grounds that:

- a. These references do not have the purpose, advanced technology, features and advantages of the claimed invention.
- b. Westfall's electrode keeps moving unlike the claimed invention.
- c. Materials and elements used by Westfall would not function if used in the claimed invention; conversely, the materials and elements used in the invention would not function in Westfall's invention.
- d. Westfall loads hydrogen outside the metal instead of inside the metal.
- e. "It is nonsense to consider Westfall's crystal growth being product removed through the growing metal crystal as the same as heat produced in the present invention."

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f. The claimed invention minimizes electrolysis unlike Paterson, the claimed invention methodically controls temperature unlike Paterson, and there are some reduction in accuracies in the experimental results from Patterson's inventions.

g. If the claimed invention is used in Patterson, it would not work.

h. Kinsella uses a stainless steel cathode, uses no loading and does not have a two-stage process.

i. Kinsella recites features that are not needed in the claimed invention.

j. If the materials and elements of Kinsella are used in the claimed invention, they would not function.

k. Kinsella loads outside the metal instead of inside the metal. in the claimed invention

The examiner disagrees.

As to argument a), the claims define the invention and the claims are the ones examined for patentability. The examiner has shown in sections 9.5-9.7 above, how the process and apparatus of Westfall, Kinsella, Patterson ('675) and Patterson ('688) each read on the appellant's claims, and therefore, each of these references anticipates the appellant's claims.

As to argument b), the feature cited by appellant is non-limiting because it is not

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recited in the claims. Note that although claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Additionally, if said unrecited features are considered by the appellant to be critical to his invention, then such omission would amount to a gap between the essential elements. In this case, the claim(s) would be incomplete and would be rejected under 35 U.S.C. 112, second paragraph. See MPEP § 2172.01.

As to argument c), the rejection was based not on the swapping of materials and elements, but whether the claimed method steps and apparatus elements are identical to or could be read into the prior art, which is the case for Westfall

As to argument d), Westfall discloses palladium as working electrode and his electrolyte is an aqueous solution that inherently contains hydrogen. Palladium is known to absorb deuterium, i.e., be loaded-inside the-metal. Appellant himself admits this as a well-known scientific fact by his claims.

As to argument e), this is precisely the point raised by the examiner that the claims are rejected because they are incomplete in failing to recite additional critical method steps and/or structure. Westfall anticipates the appellant's method and claims but he does not claim production of excess heat. Therefore, there must be a critical

feature of the claimed invention that is missing in the disclosure.

As to argument f), the features cited by the Appellant are non-limiting because they not recited in the claims. Note that although claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Additionally, if said unrecited features are considered by the appellant to be critical to his invention, then such omission would amount to a gap between the essential elements. In this case, the claim(s) would be incomplete and would be rejected under 35 U.S.C. 112, second paragraph. See MPEP § 2172.01.

As to argument g), the rejection was based not on the swapping of materials and elements, but whether the claimed method steps and apparatus elements are identical to or could be read into the prior art, which is the case for the Patterson invention.

As to argument h), stainless steel can have a composition that contains Zr (Group IVb metal) and/or Ta (Group Vb metal)both of which are suitable "loading" materials as per claims 2 and 15. The second applied electric provides the second stage of the process.

As to argument i), this is immaterial because the claims recite the inclusive, open-ended transitional term "comprising", which synonymous with "including", "containing": or "characterized by". The term, "comprising" does not exclude additional, unrecited elements. See, e.g., MPEP 2111.03 and *Genentech, Inc, v. Chiron Corp.*, 112

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F.3d 495,501,42 USPQ2d 1608, 1613 (Fed. Cir. 1997) ("Comprising" is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim).

As to argument j), the rejection was based not on the 'swapping of materials and elements, but whether the claimed method steps and apparatus elements are identical to or could be read into the prior art, which is the case for Kinsella.

As to argument k), Kinsella discloses a material containing Zr and/or Ta, which can be loaded from the inside. Appellant himself admits this as a well-known scientific fact by his claims.

10.4 35 U.S.C. 101 rejection

Appellant's arguments, i.e., that the examiner's rejection is "based upon flawed reference to other art ("FP" or "F+P") and by what appears to be Examiner's ignoring said submitted Declarations of fact and accompanying Exhibits", have already been addressed in section 10.1 above and shown to have no merits. Also, appellant himself admits that instant application is a continuation of his parent application, S/N 07,760,970. The Court of Appeals for the Federal Circuit, in its 00-108 judgment, confirmed the lack of operability of S/N 07/760,970. Therefore, this application also lacks operability since it is a continuation of the parent case.

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(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Rick Palabrica/

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